



THE NTR-NWPC SCHEME FOR APPROVAL OF WOOD PRESERVATIVES AND QUALITY CONTROL AND CERTIFICATION OF PRESERVATIVE-TREATED WOOD

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Research Institutes of Sweden

BIOECONOMY

Biobased materials



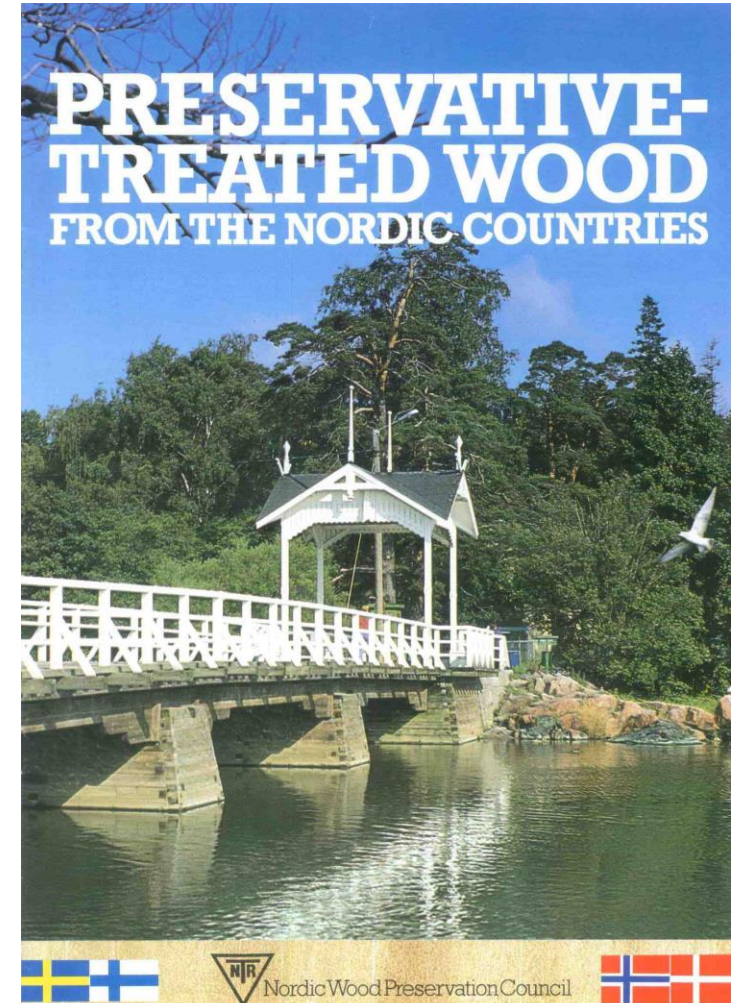
What is NTR – NWPC?

Nordiska Träskyddsrådet (NTR)/The Nordic Wood Preservation Council (NWPC)

was founded in 1969, with the aim “to promote the development in wood protection by co-ordinating efforts in the Nordic countries”.

Since 1997 the Nordic wood protection trade associations Dansk Træbeskyttelse (DK), Kestopuuteollisuus Oy (FI), Treindustrien (NO) and Svenska Träskyddsföreningen (SE) are responsible for running the NTR- NWPC.

A group of independent experts, The Technical Expert Group (TEG) , is responsible for all issues related to approval of wood preservatives with respect to the efficacy against wood destroying organisms and classification and quality control and certification of treated wood.



NTR-NWPC focus & early initiatives

NTR-NWPC early recognised the need for an appropriate classification and quality requirements - fit for its purpose - of industrially produced preservative-treated wood. Already in 1976 such a classification was in place, based on three fundamental principles:

- A classification of treated wood with respect to intended end use comprising requirements on wood preservative penetration and retention, a.i. the result of the treatment,
- A scheme for approval of wood preservatives with the purpose of specifying appropriate retentions for different end use situations, and
- A quality control and certification scheme for treaters to secure a high quality of treated wood on the Nordic market.

These issues have then been the main focus for NTR-NWPC.

NTR – NWPC Classification of preservative-treated wood

Preservative-treated Scots pine and other permeable softwoods are classified into 5 classes with respect to intended end-use (See NWPC Document No 1, Part 1):

NTR M In sea-water; salinity >0,6%



NTR A In ground contact and in fresh water



NTR A Pole In ground contact; utility and telecom poles, piles



NTR AB Above ground; in general



NTR B Above ground; external joinery



Since 2011 preservative-treated Norway spruce is classified into 2 classes with respect to intended end-use (See NWPC Document No 1, Part 2):

NTR GRAN Above ground; restricted to cladding, barge boards, battens



NTR GW Above ground; external joinery



Penetration and retention requirements

Wood protection class	Treatment requirements	
	Penetration class according to EN 351-1	Retention of wood preservative
NTR M, NTR A, NTR A Pole and NTR AB	NP 5 Full sapwood penetration	According to NWPC approval for the wood preservative
NTR B	NP 3 Minimum 6 mm lateral penetration into the sapwood	
NTR GRAN	NP 1 No penetration requirement	According to NWPC approval for class NTR AB in the 3 mm analytical zone
NTR GW	NP 1 No penetration requirement	According to NWPC approval for class NTR B in the 3 mm analytical zone

Approval of wood preservatives

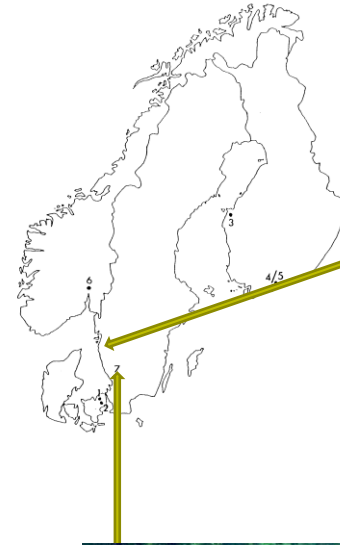
Approval of wood preservatives for the NTR wood protection classes is managed by the NTR Technical Expert Group after careful assessment of the preservative manufacturers' test results from field trials as well as lab tests, based on EN 599.

Field testing has a long tradition in the Nordic countries and are mandatory for wood preservatives for NTR M, NTR A Pole, NTR A, NTR AB and NTR B.

Strong influence on the Nordic view on field trials:

"There is yet no short cut that avoids the necessity of service tests. In fact, laboratory tests on a new preservative serve mainly to show whether it is sufficiently promising to justify making service tests"

Hunt & Garratt, Wood Preservation 1953



Kristineberg Marine test station



Simlångsdalen test field

Field test requirements – Nordic wood protection classes

NTR class	End use/Use class	Field test required
M	Marine/UC 5	EN 275, ≥ 5 years
A	In ground/fresh water/UC 4	EN 252, ≥ 5 years
A Pole	Utility poles, piles/UC 4	EN 252, ≥ 5 years
AB	Above ground/UC 3 in general	CEN TS 12037 (lap-joint), until untreated controls have reached a median rating 3 (severe decay)
B	Above ground/UC 3 joinery	EN 330 (L-joint), until untreated controls have reached a median rating 3 (severe decay)

Approved retentions

Approved retentions are reported to the manufacturer in a certificate, and a list of approved preservatives with corresponding retentions is made public on the NTR-NWPC website

www.ntr-nwpc.com.

Retentions are expressed as kg product/m³ sapwood.

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Date: 2017-01-01

List no 94

Wood preservatives approved by the Nordic Wood Preservation Council

Wood preservative	Retention requirement* in <i>Pinus spp</i> sapwood, kg/m ³				Approval valid until	Certificate No
	M	A	AB	B		
WATER-BORNE TYPE						
CC products						
Impralit CK	26.0	19.0			2020-12-31	194
Korasit CC	26.0	19.0	-	-	2017-12-31	186
CB + triazole products						
Tanalith E-7/Tanalith E 3492	-	16.0	8.0	-	2020-12-31	168
Tanalith E3463/E3475		20.0	10.0		2018-12-31	200
ACQ products						
Kemwood ACQ 1900	-	36.0	19.0	-	2017-12-31	87
Celcure AC 800	-	36.0	19.0	19.0	2017-12-31	181
ACQ 2200	-	25.0	12.0	-	2020-12-31	175
Celcure AC 500	-	25.0	12.0	-	2020-12-31	183
impralit-KDS 4	-	28.0	15.0	-	2020-12-31	154
Impralit-KDS	-	14.0	8.0	-	2020-12-31	203
Celcure C4	-	20.0	10.0	-	2020-12-31	197
Celcure M65	-	22.0	11.0	-	2019-12-31	202
Korasit KS2	-	22.0	12.0	-	2020-12-31	204
Quaternary ammonium products						

Quality control and certification

To treat according to the NWPC wood preservation classes requires affiliation to a quality control and certification scheme which includes third party inspections/audits.

At present approximately 90% of the production of preservative-treated pine in the Nordic countries (Denmark, Finland, Norway and Sweden) takes place at treating companies that are affiliated to the NWPC quality control and certification scheme.

Inspection bodies can apply to the NWPC to get accreditation to run the quality control and certification scheme.



Quality control

The quality control consists of two parts:

- **Factory Production Control (FPC - the treater's own QC)**

The aim of the Factory Production Control is to steer and ensure the quality of the production with respect to those product requirements defined for each wood protection class in NWPC Document No 1, Parts 1 and 2.

- **Third party inspections/audits**

The aim of the third party inspections is to ensure that the Factory Production Control is carried out and to check that the quality of the treated wood complies with the requirements in NWPC Document No 1, Parts 1 and 2.

Initial inspection

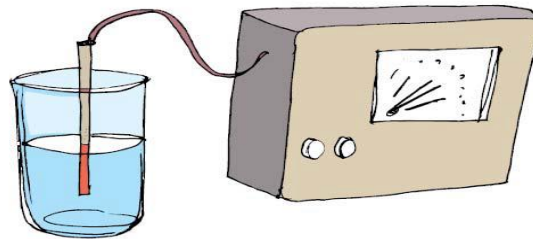
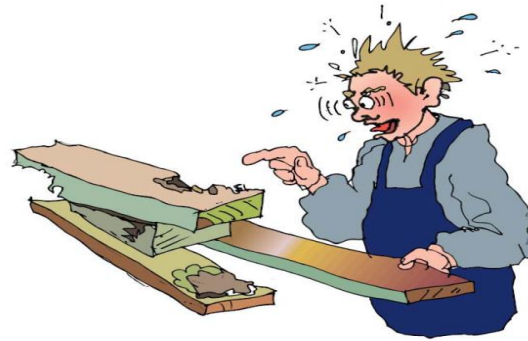
Before the plant can be affiliated to the quality control, the production equipment, equipment and routines for FPC shall be examined and approved by the quality control body.



Factory Production Control - FPC

There must be routines established for:

- checking the wood before treatment, e.g. suitable moisture content
- selection of an appropriate process and monitoring of the process
- checking the concentration of the treating solution, if applicable
- checking the result of the treatment (uptake of treating solution, penetration of wood preservative)
- recording of the treatment



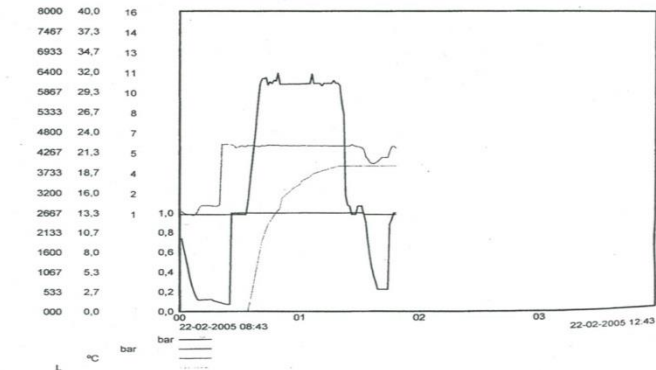
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Kunddata		Process nr.	3630	Program	1
Kundnummer	38 x 175 till Södermala	Traslag	Furu	Impregn. medel	CX- 8 NTR AB
Kundnamn	14-204			Träskvalitet	
Träfuktighet					
Anmärkingar					
Underskrift	TJ				

Processer	F-tid	T-tid	Upptagning	Total	Kono. (L %)	Total (l/m ³)	Total kg	Total kg/m ³
Förvacuum	00:07	00:16						
Fyllning		00:08						
Tryck	00:40	00:54						
Förseiad tömning	00:03	00:03	Slutförbrukning	3134	2,15	345,91	67,38	7,44
Tömning		00:09						
Eftervacuum	00:05	00:11						
Lufttjämning	00:02	00:02						
Eftertömning	00:05	00:01						
Efterfyllning		00:00						
Total		01:48						

Trädimensioner						
Reket nr	Bredd	Längd	m ³ /stk	Antal	Volym	
379791	22,0	95	632,30	1,3215	1,32	
379785	22,0	95	698,10	1,4590	1,46	
379786	22,0	95	645,30	1,3487	1,35	
379787	22,0	95	643,30	1,3445	1,34	
379782	22,0	95	707,10	1,4778	1,48	
512600	38,0	175	317,10	2,1087	2,11	
Total					9,06	

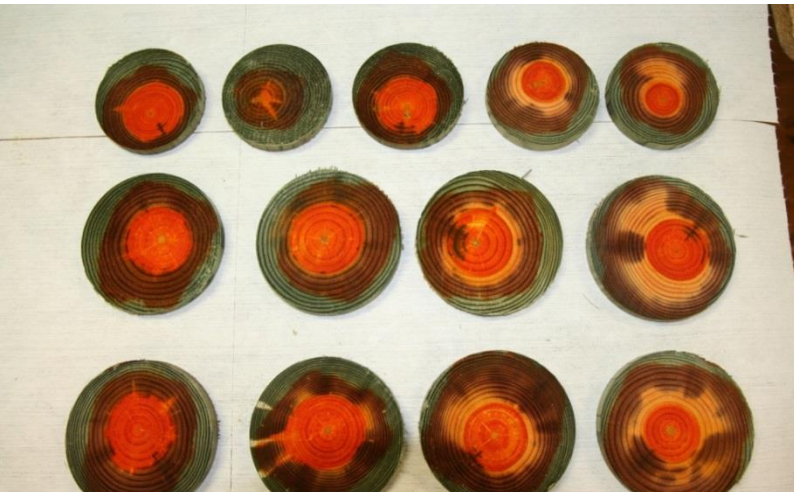
Ej. Spec.	Total	
8000	40,0	16
7467	37,3	14
6933	34,7	13
6400	32,0	11
5867	29,3	10
5333	26,7	8
4800	24,0	7
4267	21,3	5
3733	18,7	4
3200	16,0	2
2667	13,3	1
2133	10,7	0,8
1600	8,0	0,6
1067	5,3	0,4
533	2,7	0,2
000	0,0	0,0



Annual third party inspections/audits

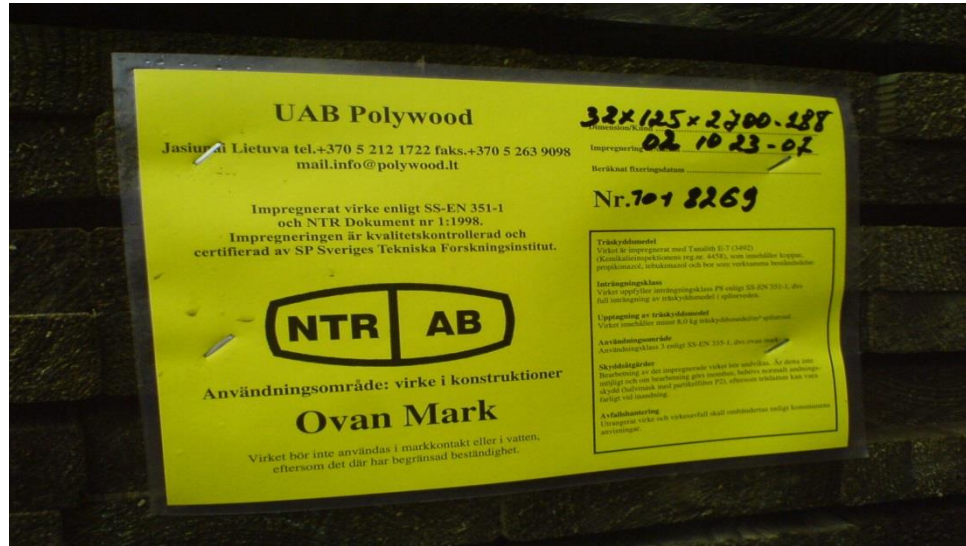
Third party inspections are normally carried out twice a year. **During the inspection visit the inspector shall:**

- check that the FPC and treatment records are carried out continuously according to given instructions.
- check the plant's equipment for FPC, mainly for measuring the concentration of the treating solution (if applicable) and the wood moisture content.
- take a sample of the wood preservative/treating solution for chemical and/or physical analysis
- take random samples from the treated wood for analysis of the preservative penetration and retention
- check that updated instructions required are available
- check that requirements for delivery and branding are fulfilled



Branding of the treated wood

-Bundle marking always required



-NTR A and NTR A Pole must have individual marking



Final words

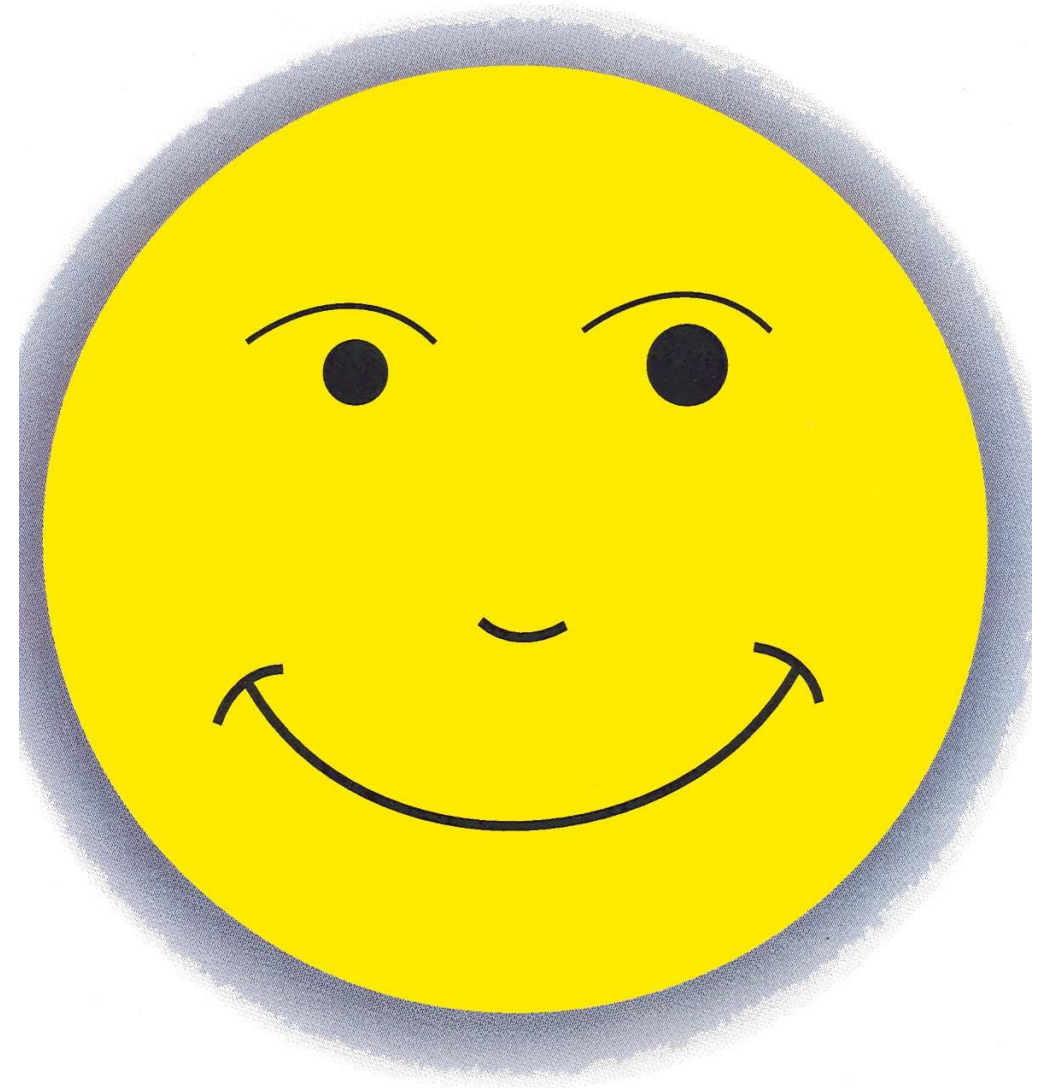
- Based on experience so far, the NTR - NWPC scheme for approval of wood preservatives, classification and quality control of treated wood has served the Nordic wood protection industry and market very well.
- Same rules, but different interpretation! Discrepancies between quality control inspectors/auditors is a recognized problem. The NTR - NWPC tries to overcome this by regular workshops to help inspectors harmonize their interpretation of the quality control rules.
- Bigger plants and increased focus on volume is a challenge for carrying out a FPC worth its name. It is therefore necessary to create good routines for the FPC.
- Competition between quality control bodies operating on the same market may be good for the treating companies. But will it be good for the consumers? If the competition is focused on price only instead of competence and service, it may be tempting for the quality control bodies to spend less time on the inspection visits and be less severe in their judgements of results from penetration and retention analyses in order to make their clients happy.
- Next step: Embrace and introduce modified wood in the NTR-NWPC classification system.

THANK YOU!

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